

**CIRCUIT AND METHOD FOR PROGRAMMING CHARGE STORAGE  
MEMORY CELLS**

**ABSTRACT**

5    [0057]    A circuit and method for self-converging programming of a charge storage  
memory cell, such as NROM or floating gate flash, having a source and a drain in a  
substrate, a charge storage element and a control gate. The method includes applying  
source voltage, inducing a body effect that increases the effective threshold, and  
increasing the source voltage along with the drain voltage to moderate hot electron  
10   injection efficiency during the program operation, at least during a portion of the program  
operation in which convergence on a target threshold occurs. A selected gate voltage is  
applied during the operation to establish the target threshold voltage. In multiple bit  
cells, the gate voltage is set according to the data values to be stored, enabling self-  
convergence at more than one target threshold.